

SOME NOTES ON *OXALIS PULCHELLA* JACQ. AND ITS VARIETIES.

By PAYMASTER-CAPTAIN T. M. SALTER, R.N. (RET.).

The species *Oxalis pulchella* Jacq. consists of a highly polymorphic group of plants, all of which may be recognised by the following common characters. Bulb large, elongate, usually obelavate, blackish and gummy or sometimes forming a hard shapeless mass when growing in rock crevices. Stem not exserted. Hairs thick, hyaline, shining. Leaflets thick and fleshy in texture, conspicuously pitted on both sides when dried owing to the collapse of the exceptionally large epidermal cells. Peduncles short, bibracteate below the middle. Sepals rather short, with 2 or more apical calli. Corolla white, pale yellow or pale salmon. Filaments edentate. Ovary chambers many-ovuled. The hairs on the nerves on the *upper* surface of the leaflets (an unique character) are only found in the typical form.

The following, which are not considered sufficiently distinct to be considered separate species, are here relegated to varieties or synonyms of *O. pulchella* :—

O. beneprotecta (Dinter) ex R. Knuth.

O. Edwardsiae Bolus f.

O. leucotricha Turcz. (*O. albida* Sond.).

O. marginata Jacq.

O. setifera R. Knuth.

O. sulphurea Jacq.

Many of the forms are fairly common, but all, with the exception of var. *tomentosa* (q.v.) which has a wide distribution, appear to be confined to Namaqualand. They usually flower in May and June.

O. foveolata Turcz. (*O. calligera* Sond.) from Kammass, Namaqualand, not Bechuanaland, is closely related to *O. pulchella*, but is sufficiently distinct to retain specific rank (see notes under *O. pulchella* var. *beneprotecta*). Sonder's description is, however, misleading, for the leaflets of Zey. 238 (*type* in Herb. Sond.) cannot possibly be described as *tomentosi* and the limb of the petals is yellow, not rosy.

O. PULCHELLA Jacq. (*O. sulphurea* Jacq.—*O. marginata* Jacq.).

Hab. Namaqualand; *Jacquin*, Darter's Grave, *Salter* 3707.

Oxalis pulchella Jacq., *O. sulphurea* Jacq. and *O. marginata* Jacq. are figured in Jacquin's *Oxalis Monographia*, tabs. 69, 63 and 68 respectively. All three are evidently the same species and the two latter have been correctly treated as synonyms by Sonder in *Flora Capensis*. No exact match of either of these plants has come to light since the time of Jacquin, but specimens collected at Darter's Grave in Namaqualand, 18 miles north of Garies (*Salter* 3707) with pale salmon-rose flowers, differ very slightly and have similar hairs on the nerves on the upper surface of the leaflets (see Fig. 1. f. 6). Dr. K. Keissler, who kindly compared my specimens with the type of *O. pulchella*, preserved in Vienna, informed me that they only differed in being rather more hairy. Neither this difference nor the colour of the flowers is of much importance and I therefore place this plant with the typical *O. pulchella*. My specimens had not the vivid red colouring on the under surface of the leaflets, depicted by Jacquin, but the leaflets of some of the varieties sometimes show this character in the living state, though not to such a pronounced degree.

Var. β TOMENTOSA Sond. (*O. Edwardsiae* Bolus f.). Leaflets rotund, greenish, usually glabrous above, with numerous minute calli along the margin, the medial usually as broad or broader than long. Corolla pale rose or salmon-rose, the lamina of the petal proportionally longer and broader than in the typical form.

Hab. Cape Province: Malmesbury Div.; Grootepost (*O. pulchella* E. & Z. 711 type), Kalabas Kraal, *F. Bolus* (Bol. Herb. 14555): Piquetberg Div.; Monte Cristo, near Porterville, *Edwards* 73 (*O. Edwardsiae* Bolus f.), Grey's Pass, *Leipoldt* (Bolus Herb. 19704, 19705), *Salter* 747, 1684, 4428: Van Rhyn's Dorp Div.; between Olifant's River and Knakisberg, *Zeyher**, Bitterfontein, *Salter* 925, 5350: Worcester Div.: near De Doorns, *Salter* 2184, 6041; Swellendam Div.; *L. Bolus* (Bol. Herb. 20115).

E. & Z 711 is correctly placed here and is the same as Zeyher's specimens from between Olifant's River and Knakisberg, but Zeyher's other specimens from between Hartebeeste River and Eenkoker differ and are now placed in the next variety *glauca*. Again I cannot agree with Sonder that the leaflets are tomentose though the hairs overlying the collapsed cells give them that appearance at a casual glance.

* Zeyher's numbers 228 and 240 are omitted both here and under the next variety. These numbers seem to have been erroneously interchanged by Sonder in the *Flor. Cap.* In Sonder's herbarium and in the South African Museum the tickets "from between Hartebeeste River and Eenkoker" bear the number Z. 240 in Zeyher's handwriting (not 228) and those "from between Olifant's River and Knakisberg" only have Zeyher's collecting number 58.

Possibly Zeyher's specimens have been confused in distribution and it is at any rate safest to cite them by their localities and not by their numbers.

Sonder has made the same error in the description of the leaves of *O. algoensis* E. & Z. and *O. collina* E. & Z.

Var. γ **glauca** Salter, var. nov. (*O. setifera* R. Knuth). *Pili* densiores. *Folia* 6—20, glauca: foliola utrinque aequaliter pilosa vel subtus glabrescentia, apice interdum inconspicue callosa, medium plus minusve rotundatum vel late cuneatum vel subrhombiforme, lateralia angustiora, oblique oblonga vel obovata. Corolla alba vel pallide lutea: petala apice subtruncata.

Plant more densely hairy. Leaves about 6—20, glaucous-grey: petioles up to 3 cm. long: leaflets evenly pilose or glabrescent above, rarely purple-mottled, sometimes with a few inconspicuous calli at the apex, the medial more or less rotund, broadly cuneate or subrhomboid. 0.7—2 cm. long, 0.7—1.8 cm. broad, the lateral smaller, narrower, obliquely oblong or obovate. Corolla 2—3 cm. long, pale yellow or white with a yellow tube, the lamina of the petals 0.9—1.5 cm. broad, somewhat truncate at the apex.

Hab. Namaqualand: between Hartebeeste River and Eenkoker, Zeyher: Garies area, Salter 2530, 2555, 3398, 6650, 6659, 6671; Kamieskroon area, *L. Bolus* (Bol. Herb. 19988), Salter 803A, 806, 847, 850 (type in Bolus Herbarium), 870A, 1406A, 2568, 4600, 4613; Springbok area, Salter 908, 2579; Steinkopf area, Salter 5548, 5551.*

O. setifera R. Knuth, described from a fragment without flowers, is this variety.

Var. δ **leucotricha** (Turcz.) Salter, comb. nov. (*O. leucotricha* Turcz.—*O. albida* Sond.). Stem not exserted. Herbaceous parts hirsute with thick shining hyaline patent hairs. Bulb elongate, obclavate, up to 12 cm. long with dark brown gummy tunics: root contractile. Leaves often 10—15, spreading: petioles 1—2.5 cm. long, densely hirsute: leaflets 3, sessile, oblong or ligulate, tapering slightly towards the base and apex, obtuse, sparsely hirsute above and on the conspicuous medial nerve below, ciliate, hollow-dotted on both sides when dried, the medial up to 4.5 cm. long and 0.7 cm. broad, the lateral slightly oblique, usually rather smaller, the leaflets of the young bulbils more or less rotund, lengthening progressively. Peduncle up to 3 cm. long, densely hirsute, with 2 alternate linear bracts, 3—4 mm. long, callose at the apex, situated below the middle. Sepals oblong, obtuse, about 5 mm. long, densely ciliate, conspicuously bicallous at the apex. Corolla glabrous, 2—3 cm. long, pale yellowish-salmon: tube yellow. Filaments (connate part included), longer 4.5—8 mm., sparsely glandular-pilose, edentate, shorter 2.5—4 mm. long, glabrous. Ovary glandular-pilose on the upper half with

* Some of my earlier specimens of this variety were distributed under the manuscript name *O. rupicola*.

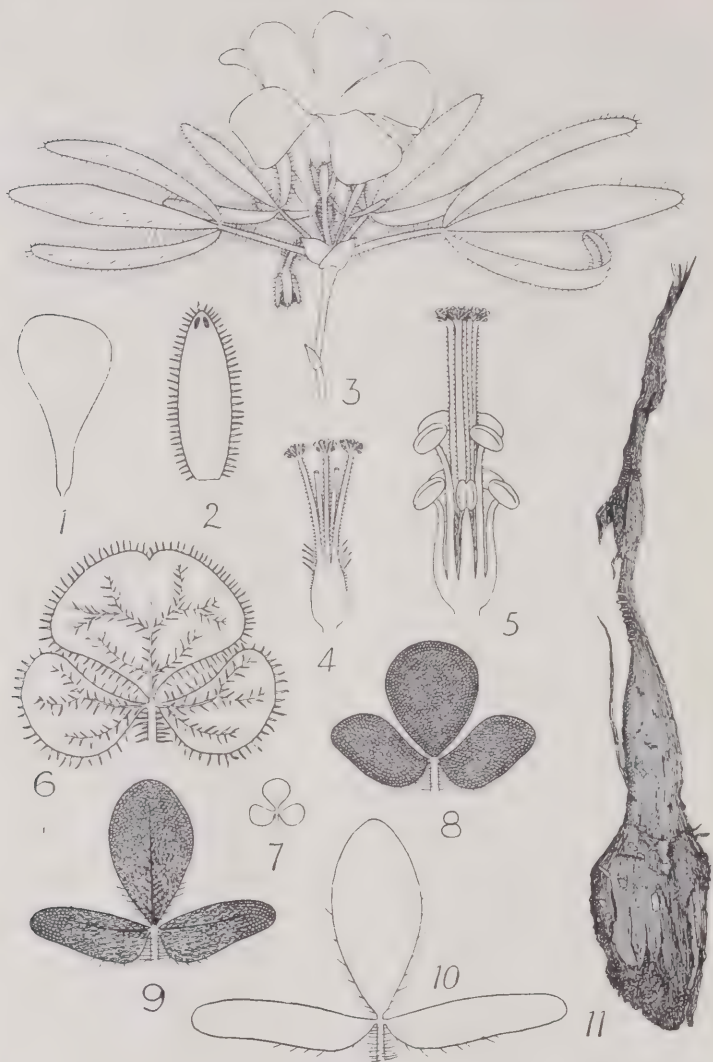


FIG. 1. *Oxalis pulchella* Jacq., var. *leucotricha* (Turcz.) Salter. 1. Petal, natural size. 2. Sepal $\times 5$. 3. Plant, natural size. 4. Gynaecium $\times 6$. 5. Androecium $\times 6$. 6. Leaf of *O. pulchella*, upper side. 7, 8, 9 and 10. Leaves of var. *leucotricha* showing progressive lengthening of the leaflets (8, upper side and 9, under side of dried leaves, showing the pitting due to the collapse of the cells), all $\times 2$. 11. Bulb, natural size (Salter 6651). Del. T. M. Salter.

a few long hyaline hairs near the apex, the chambers about 10-ovuled. Styles glandular-pilose.

Hab. Namaqualand: between Hartebeeste River and Eenkoker, Zey. 228 (*ex parte*), $6\frac{1}{2}$ miles west of Garies, Salter 6651.

O. leucotricha Turcz. is no more than a variety of *O. pulchella*. Since normal plants can scarcely be recognised from the existing description of Zeyher's poor starved specimens, a full and revised description, with figure (Fig. 1) is given above under the varietal name *leucotricha*. This variety, which had escaped rediscovery since Zeyher's time, has pale yellowish-salmon flowers and I think it very doubtful whether the flowers of the *type* (Zey. 228) were yellow as stated by Sonder: at any rate they are now colourless. It was found in abundance along the Hondeklip road near Garies in Namaqualand and, about 100 yards away, separated from it by a small valley, a form with more or less rotund leaflets, but otherwise identical (Salter 6650), was just as abundant. This latter form is inseparable from the preceding variety *glauca*. The two forms were not found in actual association and there were no intermediates.

Var. *leucotricha* has been grown in cultivation in the National Botanic Gardens at Kirstenbosch and it has been found that the young bulbils at first produce rotund leaflets, the later leaflets becoming progressively longer as shown in Fig. 1, f. 7, 8, 9 and 10.*

Var. ϵ ***beneprotecta*** (R. Knuth) Salter, comb. nov. Plant smaller in all parts, the hairs thinner. Leaves rosulate, spreading, often very numerous (up to 200) and forming dense flat tufts: leaflets glaucous-grey, almost glabrous, the medial cuneate, rotundate at the apex or cuneate-rhomboid, 3–8 mm. long, the lateral obliquely oblong or oblong-obovate, smaller and narrower: petioles usually pilose, the lower up to 4 cm. long, the upper progressively shorter. Peduncles 2–6 mm. long rarely up to 1.2 cm. long. Sepals ovate, 3–4 mm. long. Corolla about 2 cm. long, pale yellow, with a rather broadly funnel-shaped tube: lamina of petal obliquely obovate, longer than the claw, minutely purple-streaked on the outer margin. Longest styles or stamens 7 mm. long.

Hab. South-West Africa; Vahldorn, Dinter 5182 (*type*): Namaqualand; Louwpoort, Salter 4590, near Kamieskroon, 1407, 9 miles north of O'Okiep, 2585.

Dinter's specimens are less hairy and have far fewer leaves than those from Louwpoort and Kamieskroon which were growing in rock crevices and had large distorted bulbs, but the two forms are evidently not separable.

* A similar progressive lengthening of the leaflets also takes place in other species, e.g., *O. laburnifolia* Jacq., var. *angustata* and *O. Franesii* L. Bolus.

This variety resembles *O. foveolata* Turcz. (*O. calligera* Sond.), differing in its wider, funnel-shaped corolla tube and much shorter styles and stamens. The tube in *O. foveolata* is nearly cylindrical and the longest styles and stamens 1.4 cm. long and well exserted from the tube.

Var. *glabrata* Sond., Langvallei, *Drege*!, in Herb. Sond. is *O. luteola* Jacq. The leaves appear to have been diseased.